CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name:	Vaughn Gravel Pit
Proposed Implementation Date:	Spring 2017
Proponent:	United Materials of Great Falls, Inc. 2100 9th Ave. N Great Falls, MT 59401
Location:	Sections 16 – T21N-R1E (Common Schools)
County:	Cascade

I. TYPE AND PURPOSE OF ACTION

The proponent has applied to the Department of Natural Resources and Conservation (DNRC) for a gravel permit from the section of State Trust Land noted in the title. The project is located in T21N-R1E-Section 16. This gravel would be mined over 30+ years for various construction projects. This assessment will discuss approximately 280 acres in N½N½, N½S½N½, S½SE¼NE¼ and N½NE¼SE¼ of Section 16 of State of Montana land that would be permitted and mined. Please see the attached map. The proponent would remove approximately 200,000 cubic yards per year from this gravel pit, with approximately a total of over 5,000,000 cubic yards would be removed from this site over the 30+ year life span of this pit. The proponent would be required to follow the stipulations on operations and reclamation outlined by DNRC gravel permit. Specifics of these stipulations will be noted further in this document. The proponent would also be held responsible for reclamation of this site by a bond with the DEQ Opencut Mining Program.

II. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED:

Provide a brief chronology of the scoping and ongoing involvement for this project.

United Materials of Great Falls
State of Montana Department of Environmental Quality (DEQ): Opencut Mining Plan of Operation and Application #2819
State of Montana DNRC: Surface and Mineral Owner. Central Land Office Unit Manager Andy Burgoyne and Land Use Specialist Casey Kellogg. Minerals Management Bureau staff; Petroleum Engineer, Trevor Taylor, and Mineral Resource Specialist, Heidi Crum. DNRC Archeologist Patrick Rennie.
DNRC Surface lessee: Applestem Inc.
Cascade County Weed District: Weed Management Plan

2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

State of Montana DEQ – Opencut Mining Plan of Operation and Application #2819
Cascade County – Special Use Permit S03-2017

3. ALTERNATIVES CONSIDERED:

No Action Alternative: The proposed gravel permit would not be granted. Current non-motorized recreational use and grazing leasing would continue.

Action Alternative: The gravel permit would be granted to United Materials of Great Falls, Inc. to take and remove gravel from trust land.

III. IMPACTS ON THE PHYSICAL ENVIRONMENT

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

Consider the presence of fragile, compactable or unstable soils. Identify unusual geologic features. Specify any special reclamation considerations. Identify any cumulative impacts to soils.

The mining permit boundary in Section 16 contains a terrace with surrounding slopes and various coulees and drainages. The top of the terrace is composed of alluvial deposits of the Greenfield Bench from the Pleistocene and/or Pliocene eras. These deposits are 15-20 feet deep and contain many different sizes of material ranging from granules to small boulders. The immediate slopes off the terrace are the Upper Cretaceous Bootlegger Member of the Blackleaf Formation. This formation is 150-330 feet deep with sandstone and siltstone mixed with beds of silty shale and bentonite. Glacier lake deposits can be found further down the slopes from the terrace which contain silt mixed with fine sand and clay from Glacial Lake Great Falls. The Glacier lake deposits in this section contain small portions of the Vaughn Member of the Blackleaf Formation. This formation contains bentonitic claystone with siltstone and sandstone. No unique or unstable geology occurs at the proposed gravel pit site.

Soil types on the terrace in Section 16 are Evanston clay loams and Crago gravelly loams. Evanston clay loams can have up to 27 inches of clay loam over a loam horizon that is 27-60 inches deep. The Crago gravelly loam is well drained and contains gravel throughout the soil profile. The edge of the terrace contains Crago very cobbly loams which has cobbles in A and B horizons, and gravel in the C horizon. The slopes off the terrace and the coulees contain Crago-Wawdim complex which have cobbles in the A and B horizons, and gravel in the C horizon.

The soils on the terrace tops have a slight erosion hazard potential and high restoration potential. These soils also have a good trafficability rating, even in wet conditions with heavy equipment used for mining. The soils on the slopes surrounding the terrace have severe erosion hazard, but high restoration potential. These soils do not have good trafficability.

The proponent's access road would be built on the terrace top as well as traveling down a slope of the terrace on the west side. The proponent would build a road to safety standards to reduce erosion on the slopes.

DNRC gravel permit stipulations would require any topsoil and subsoil to be stripped and stockpiled for use in reclamation. Reclamation would require the slopes of the area to be put back to a natural

contour with erosion control techniques. DEQ Opencut Mine permit requires the proponent to stockpile the top soil and the sub soil (also called overburden) separately for reclamation. DNRC gravel permit would require the proponent to keep the stockpiles at a maximum height of six feet to minimize soil sterilization.

DNRC gravel permit stipulations would require the proponent to leave an undisturbed berm on the south side of the terrace to keep visibility and noise from the gravel pit at a minimum from the traffic on Highway 200 and the residents of Vaughn, MT. Additionally the DNRC gravel permit stipulations will only allow for a maximum of 40 acres to be disturbed at any given time. The operator will reclaim behind them as they expand the mining operations. DNRC gravel permit stipulations would require the operator to control dust on the mine site and all haul routes.

5. WATER QUALITY, QUANTITY AND DISTRIBUTION:
Identify important surface or groundwater resources. Consider the potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality. Identify cumulative effects to water resources.

One domestic and two stockwater wells are within a mile of the proposed permit mining boundary, in the sections surrounding Sections 16. No wells are located within Section 16. The mining permit boundary is mostly on a terrace, which is approximately 200 feet higher in elevation from all of the surrounding wells. The proponent estimates the seasonal high water table on the terrace to be approximately 30 feet deep, and the maximum depth of mining would be 22 feet. An unnamed ephemeral drainage runs west to east through the north half of Section 15 and eventually flows into Muddy Creek in Section 11 to the east of the proposed project. An irrigation canal runs through Section 21 and 22 to the south of the proposed project. The canal is approximately 200' lower in elevation and 1.25 miles to the south of the mining boundary. There are four stockwater dams located in the southern half of Section 16. The proponent would install erosion control techniques on the site to prevent effects to surface water quality.

The proponent would have a double wall fuel tank on the site, which would have vegetative buffers and a berm large enough to contain a spill for erosion control and water quality protection. All fuel, oil and waste would be kept out of the pit area. Any spills would be excavated and removed immediately.

6. AIR QUALITY:
What pollutants or particulate would be produced? Identify air quality regulations or zones (e.g. Class I air shed) the project would influence. Identify cumulative effects to air quality.

An increase in airborne pollutants and particulates would occur from machinery during proposed gravel activities. Impacts to air quality are expected. The proponent plans to use this pit continuously for construction projects. A crusher, pug mill, screen, and grizzly will be moved on and off-site as needed. Excavating and hauling equipment including a dozer, dump truck, excavator, loader, scraper and conveyer would be on-site continuously as the proponent would mine this site year round. Additionally, the proponent would be required by a stipulation in the DNRC gravel permit to control dust on all haul routes to the pit.

7. VEGETATION COVER, QUANTITY AND QUALITY:
What changes would the action cause to vegetative communities? Consider rare plants or cover types that would be affected. Identify cumulative effects to vegetation.

The proposed mining boundary in Section 16 is Great Plains mixedgrass prairie with scattered cliffs and outcrops that lack vegetation. Agricultural land is located to the south and west of Section 16. Species on this section includes bluebunch wheatgrass, blue grama, prairie junegrass, fringed sagewort, club moss, needle and thread grass, Sandberg bluegrass and broom snakeweed. The top of the terrace contains very gravelly soils which limit the grass production.

A gravel mining operation would remove the vegetative community of the area being mined. The proponent would be required to stockpile all top soil and subsoil for future reclamation. All stockpiles would have a maximum height of six feet to limit soil sterilization for reclamation. The DNRC gravel permit would only allow the proponent to have 40 acres disturbed at any given time, and must reclaim as the pit expands. DNRC gravel permit stipulations state that DNRC may require the proponent to haul in topsoil for reclamation if necessary. The proponent would be required to use a grass mix listed in the stipulations of the gravel permit. The proponent would also be required by stipulations to spray weeds on reclaimed areas for a period of three growing seasons after the grass is seeded to help the vegetation get established.

8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:
Consider substantial habitat values and use of the area by wildlife, birds or fish. Identify cumulative effects to fish and wildlife.

A variety of big game, small mammals, raptors, upland game birds and songbirds use this area and activities from the proposed project could disrupt wildlife movement and patterns.

Grassland habitat would be removed with the proposed activities. The DNRC gravel permit would allow the proponent to have 40 acres disturbed at a time to minimize the impacts of this large scale operation on wildlife.

Big game winter range attributes would be altered; changes in thermal cover and changes in available forage for wintering big game would be anticipated. Similar habitat is available in the area. The terrace this project would be located on is within hundreds of acres of similar, undeveloped habitat. Big game animals would have many alternative travel routes, cover and foraging sites. Additionally, the proponent would only be allowed to have 40 acres disturbed at a time.

9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:
Consider any federally listed threatened or endangered species or habitat identified in the project area. Determine effects to wetlands. Consider Sensitive Species or Species of special concern. Identify cumulative effects to these species and their habitat.

A search was conducted using the Montana Natural Heritage Program (MNHP) database to identify point observations of species of concern in the section of the proposed activity.

A point observation from 2005 documented a nesting pair of Long-billed Curlews located on the southern border of Section 16, and these confirmed breeding areas are given a buffer of 200 meters. This buffer area extends into the permit mining boundary in Section 16; although, should Long-billed

Curlews still inhabit this location, mining activities would likely not have a direct, measurable impact on the nesting pair documented in SE¼SW¼ of Section 16 due to the distance and elevation difference between the mining area and the nest location. The nest location is approximately 0.5 miles away from the access road, 0.8 miles from the mining boundary and approximately 200 feet in elevation lower than the mining boundary.

Approximately 2.5 miles to the east of the proposed project there have been point observations documented in Section 24 for a Northern Leopard Frog in 1997, a returning pair of Long-billed Curlews in 2010, a Golden Eagle in 2013, a Great Blue Heron in 2010, and a Sharp-tailed Grouse in 2012.

Three miles north of the proposed project in Sections 28 & 29 T22N-R1E, there have been documented sightings of Chestnut-collared Longspur in 1994, Franklin's Gullin in 1994, and Long-billed Curlews in 1994.

In Section 36-T21-R1W, approximately 4 miles to the southwest of the proposed project, there was a colony of Great Blue Herons. The MNHP website records show the nests were active until 1980, but as of 2011 none of the nests were occupied by Great Blue Herons. MNHP website indicates this species may forage for food up to 6,500 meters from the nest. Montana Department of Fish, Wildlife & Parks recommends no surface occupancy within 300 meters of an active rookery. MNHP maps indicate the 6,500 meter foraging zone for this Great Blue Heron colony crosses into the southwestern quarter of Section 16. However, with the lack of records of this species actively inhabiting this specific site in recent years, the proposed mining project would have minimal impacts on the species at this location.

This section is not located within the Greater Sage Grouse general habitat or core habitat area boundaries.

10. HISTORICAL AND ARCHAEOLOGICAL SITES:
Identify and determine effects to historical, archaeological or paleontological resources.

2/18/15; Site visit and archeologic survey completed by DNRC staff Patrick Rennie, Archeologist, and Andy Burgoyne, Central Land Office Helena Unit Manager.

Archaeological site 24CA1741 is located in Section 16. This site consists of three tipi ring-size stone circles. Per the requirements of the Montana State Antiquities Act, the DNRC is responsible to evaluate the significance of this resource before it is disturbed. Evaluation efforts will follow the terms of reference established by the DNRC at General Terms of Reference for Archaeological Evaluation of Common Surface Stone Feature Sites. If site 24CA1741 is evaluated and determined to be a Heritage Property, then additional mitigation work may be required. The proponent may choose to avoid disturbing site 24CA1741, or cover the cost of evaluation and possible mitigation if the site cannot be avoided. Estimated cost of evaluation and mitigation may be approximately $10,000.00. If site 24CA1741 is disturbed without DNRC authorization, the permittee may face civil and criminal penalties under the Montana State Antiquities Act (22-3-421 et seq. M.C.A.). If the proponent chooses to avoid site 24CA1741, then the proponent must purchase and erect high visibility snow fence around the defined site boundary. No ground disturbance, including driving over or parking equipment, within the site boundary would be allowed.

11. AESTHETICS:
Determine if the project is located on a prominent topographic feature, or may be visible from populated or scenic areas. What level of noise, light or visual change would be produced? Identify cumulative effects to aesthetics.

The proposed gravel pit site is approximately 1.3 miles north of MT Highway 200 and 2 miles west of Vaughn, MT and the Interstate-15 exit for Vaughn. The site is located on a bench that is approximately 200 feet higher in elevation than the valley floor where most of the local residents live along MT Highway 200. Aesthetics may be impacted as the pit would be visible from the traffic that utilizes both of the roads mentioned above. The proponent would be required by stipulations in the DNRC gravel permit to leave an undisturbed berm on the south edge of the terrace to minimize sound and visibility from traffic on MT Highway 200 and the residents of Vaughn, MT. At the end of the life of the pit, the proponent would mine the berm and reclaim the site.

Gravel pit excavation would occur at any time of the day or night throughout the year.

12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:
Determine the amount of limited resources the project would require. Identify other activities nearby that the project would affect. Identify cumulative effects to environmental resources.

The proposed project would have an impact on the land, approximately 280 acres in Section 16. The DNRC gravel permit stipulation would only allow the proponent to have 40 acres disturbed at a time. The proponent would reclaim behind them as mining proceeds through the 280 acres. Reclamation would include contouring, reseeding and weed control to help restore the vegetation on the site.

The proponent would use an insignificant amount of water for gravel excavation as there would be no dewatering on-site, and would affect the air quality due to airborne dust particles resulting from mining activities and vehicles traveling to and from the gravel pit. The proponent would be required to control dust on all access routes to help minimize degradation to air quality.

13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:
List other studies, plans or projects on this tract. Determine cumulative impacts likely to occur as a result of current private, state or federal actions in the analysis area, and from future proposed state actions in the analysis area that are under MEPA review (scoped) or permitting review by any state agency.

No other environmental documents were found that pertain to Section 16 in T21N-R1E.

IV. IMPACTS ON THE HUMAN POPULATION

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

14. HUMAN HEALTH AND SAFETY:
Identify any health and safety risks posed by the project.

No human and health safety risks were identified as a result of the proposed project other than the typical occupational hazards that coincide with mining operations. The proponent would be held liable for all risks to human health and safety.

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:
Identify how the project would add to or alter these activities.

The proposed project is not expected to alter current or future industrial, commercial, and agricultural activities and production.

16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:
Estimate the number of jobs the project would create, move or eliminate. Identify cumulative effects to the employment market.

The proposed project would not create, move, or eliminate jobs.

17. LOCAL AND STATE TAX BASE AND TAX REVENUES:
Estimate tax revenue the project would create or eliminate. Identify cumulative effects to taxes and revenue.

None. The proponent is only moving equipment to a new site, not expanding their operation as a whole.

18. DEMAND FOR GOVERNMENT SERVICES:
Estimate increases in traffic and changes to traffic patterns. What changes would be needed to fire protection, police, schools, etc.? Identify cumulative effects of this and other projects on government services.

None.

19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:
List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.

This site is zoned as agricultural. The proponent would need to obtain a Special Use Permit through the Cascade County Zoning Board of Adjustments.

20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:
Identify any wilderness or recreational areas nearby or access routes through this tract. Determine the effects of the project on recreational potential within the tract. Identify cumulative effects to recreational and wilderness activities.

None.

21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:
Estimate population changes and additional housing the project would require. Identify cumulative effects to population and housing.

None.

22. SOCIAL STRUCTURES AND MORES:
Identify potential disruption of native or traditional lifestyles or communities.

None.

23. CULTURAL UNIQUENESS AND DIVERSITY:
How would the action affect any unique quality of the area?

None.

24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:
Estimate the return to the trust. Include appropriate economic analysis. Identify potential future uses for the analysis area other than existing management. Identify cumulative economic and social effects likely to occur as a result of the proposed action.

The existing grazing lease provides approximately $1,933.00 in annual revenue from Section 16 that goes to Common Schools. The proponent has provided $25 for a gravel permit and would pay an annual advanced royalty of $75,000.00, $1.50 per cubic yard in royalties for this DNRC gravel permit. The proponent proposes to mine approximately 200,000 cubic yards per year, generating approximately $300,000.00 to Common Schools annually.

EA Checklist Prepared By:	**Name:**	Heidi Crum	**Date:**
	Title:	Mineral Resource Specialist	

V. FINDING

25. ALTERNATIVE SELECTED:

After reviewing the Environmental Assessment, I have selected the Action Alternative, to issue a Gravel Permit. I believe this alternative can be implemented in a manner that is consistent with the long-term sustainable natural resource management of the area and generate revenue for the common school trust.

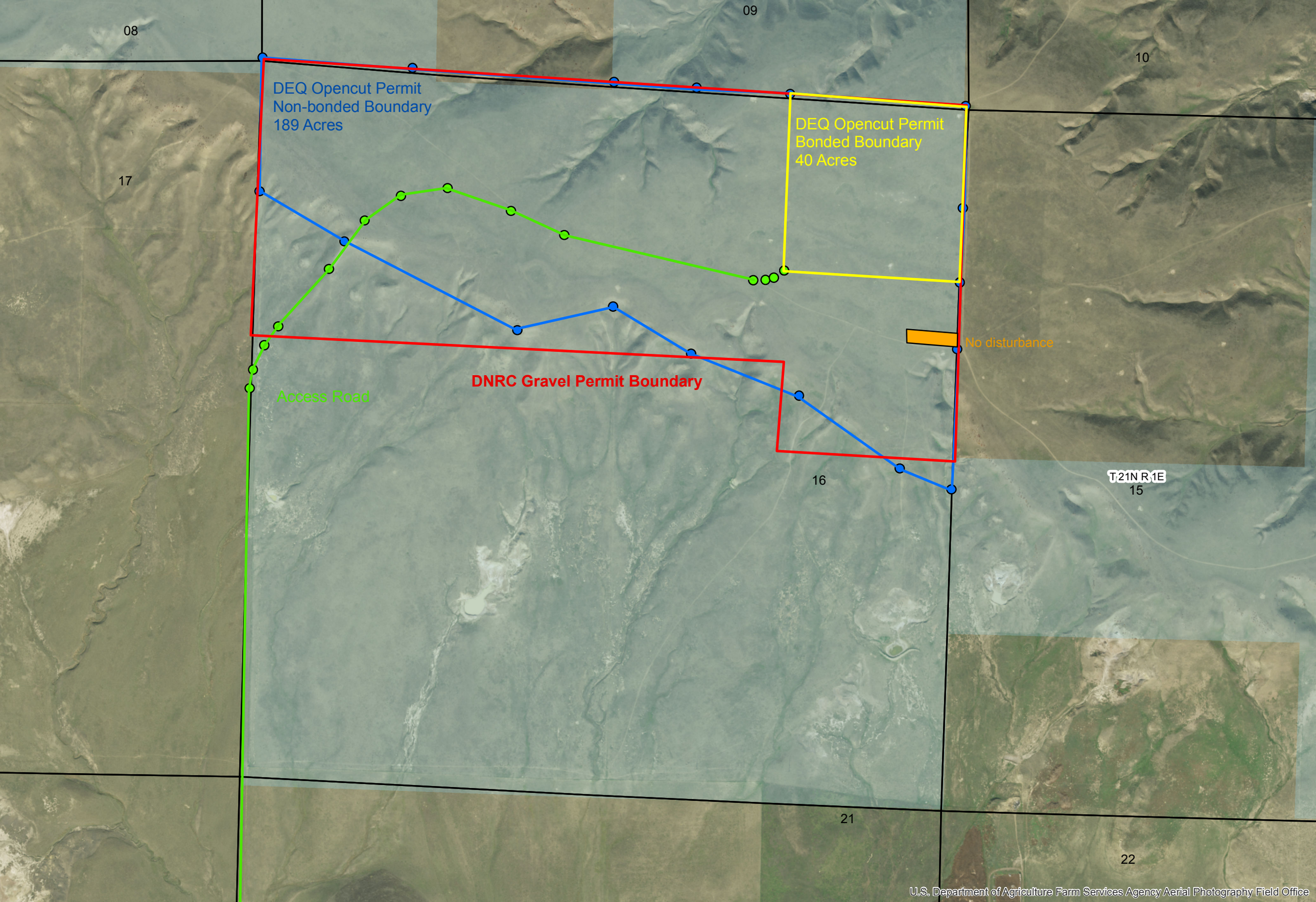
26. SIGNIFICANCE OF POTENTIAL IMPACTS:

I conclude all identified potential impacts will be mitigated by utilizing the stipulations listed below and no significant impacts will occur as a result of implementing the selected alternative.

27. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:

[ ]	EIS	[ ]	More Detailed EA	[X]	No Further Analysis

EA Checklist Approved By:	**Name:**	Monte Mason	
	Title:	MMB Bureau Chief	
Signature:	Monte L Mason	**Date:**	3/31/2017


08
09
10
17
DEQ Opencut Permit
Non-bonded Boundary
189 Acres
DEQ Opencut Permit
Bonded Boundary
40 Acres
No disturbance
DNRC Gravel Permit Boundary
Access Road
16
T 21N R 1E
15
21
22
U.S. Department of Agriculture Farm Services Agency Aerial Photography Field Office